TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: SE #12

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	None
Location for Sampling Gear:	possible adjacent areas available
Sampling Gear / Speciality Equipment:	reccomend grab site
Outfall Sampling Location Description:	NA

FLOW MONITORING:	
Channel Type / Description	Narrow Small natural creek
Flow Equipment:	hand measurements reccomended
Tidal Influence / Site Effects:	None

SITE TECHNICAL SPECIFICATIONS:			
Technical Measurements Collected ?		YES ___ NO ✓	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	Other Tech. Info.	

WATERSHED AND SITE LU/LC

General LU / LC Description: LU: residential & recreational (park and adjacent to golf course)
LC: heavily wooded, creek completely overgrown w/ dense brush, meanders through alder forest

GENERAL SITE NOTES:

- East fork is a small trib
- Not a great LTM site
- Rec'ed as a grab sample and hand measured flow site

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
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Land Locations

Page:	1 of 2
Date:	1/18/06
Time:	1105

LOCATION INFORMATION:

Location ID:		Primary Site Code:	SW	Secondary Site Code:	Crk
CoBI Site Area:	MDCV	CoBI Watershed Code:	MDCV	CoBI Site Owner Type:	CTLG
Location Description:	SE#16 Grisdale (Murden ~~Cove~~) Crk at SR305 crossing				
Location Name:	Grisdale / Murden ~~Cove~~ Creek	Loc Coord. Ref System:	SPCS		
Lat. / Northing:	242820.63	Long. / Easting:	1224019.52		
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601	Horizontal Collection	13 (EIM Code)		
Other Location Info:	SE#16 as field insp'ed differ from CoBI SE site list				

ACCESS INFORMATION:

Site Access (Driving Directions,Vehicle, Personnel, etc.)
SR 305 ~1/2 way between Sportsman Cl Rd and NE Beachcrest Drive

General Logistics: SR305 is a major arterial hiway - very busy - high traffic. Park along either east of west bound shoulders (depending on what side of the culvert you are accessing) 24-hr. access, no lighted

Traffic Control: None required but cones / hazards / strobe light on van needed + high visibility vest for personnel rec'ed

Confined Space: No - however partial ~~entry~~ entry inside of box culvert rec'ed For flow meter placement (if A-V meter is used)

Health and Safety Concerns: Traffic #1, slippery, somewhat steep trails leading to either end of culvert

Cell Reception:	YES ✓ NO ___	Site Owner Info:	CoBI ROW

SITE PHOTOS

Photo No. 1	Facing outlet
Photo No. 2	Facing outlet - close-up
Photo No. 3	Facing outlet pool / sample collection area
Photo No. 4	Facing inlet

No. 5 Facing inlet - close-up No. 6 Additional inlet pic.

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: SE #16

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	No
Location for Sampling Gear:	Either inlet or outlet sides of box culvert, room for gear enclosure at either end
Sampling Gear / Speciality Equipment:	LTM or grab gear - which ever is desired
~~Outfall~~ Sampling Location Description:	Sample from within main channel - Both sides of culvert receive roadway runoff (outlet would receive all run-off)

FLOW MONITORING:	
Channel Type / Description	Flow monitored from either within culvert channel (A-V meter) or from stilling well positioned in deep - main course at either end
Flow Equipment:	A-V meter or level logger / hand measurements
Tidal Influence / Site Effects:	None

SITE TECHNICAL SPECIFICATIONS:			
Technical Measurements Collected ?		YES ___ NO ✓	If Yes, Report Measurements on Page 3
Site Drawing #:	~~AA~~ 005	Other Tech. Info.	5'x4' box channel w/ concrete floor

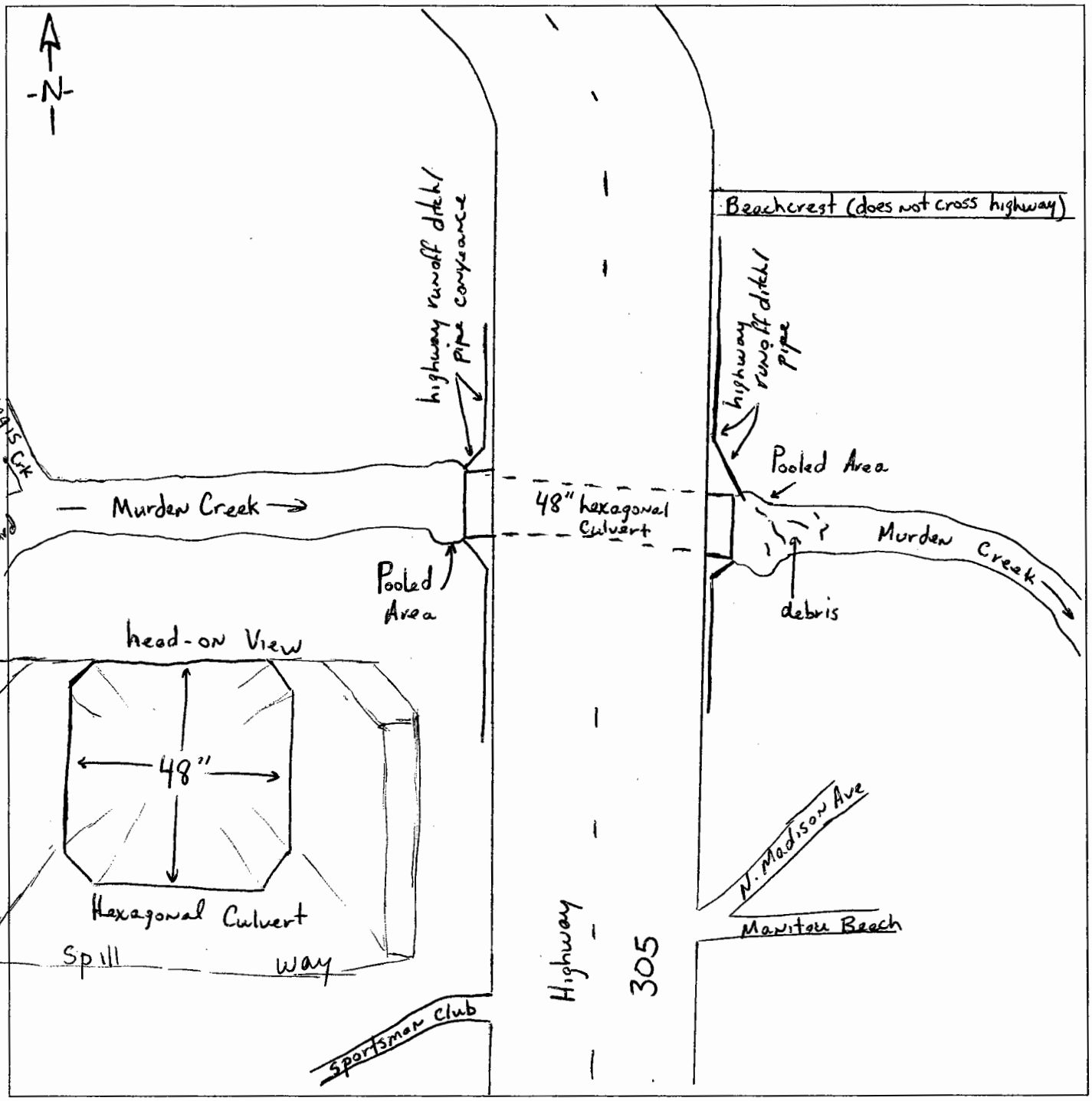
WATERSHED AND SITE LU/LC

General LU / LC Description: LU: Residential, commercial
LC: Timberland, open space, housing, roads

GENERAL SITE NOTES:

- Flow was moderate (1-10 FPS) at 14" of depth
- Murden Creek is largest creek system on the island
- Sample & Flow measurements could be collected at either side of culvert, although inlet side is slightly more favorable for access
- All site characteristics, except working near traffic, are favorable

City of Bainbridge Island
Water Quality and Flow Monitoring Program
Site Evaluation Event



Drawing No. 005	**Drawing Date:** 1/18/06
Site Location: SE#16	**Drawing By:** DCM

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	1 of 2
Date:	1/18/06
Time:	1035

LOCATION INFORMATION:

Location ID:		Primary Site Code:	SW	Secondary Site Code:	Crk
CoBI Site Area:	MDCV - Manitou Beach Crk	CoBI Watershed Code:	MDCV	CoBI Site Owner Type:	CTLG
Location Description:	SE #20 Manitou Beach Crk at Beach Crest Drive				
Location Name:	Manitou Beach Creek	Loc Coord. Ref System:	SPCS		
Lat. / Northing:	244350.54	Long. / Easting:	1225863.68		
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601	Horizontal Collection	13 (EIM Method Code)		
Other Location Info:	Location reference by large western red cedar tree at stream crossing				

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.)
Madison Ave NE to NE Beach Crest Drive, proceed down Beach Crest drive to low point - creek crossing - marked by large cedar tree. Near driveway of address 9995

General Logistics: Tight parking, some road. Park at driveway entrance and pull off road as far as possible. Not lighted, 24-hr. access

Traffic Control: None required

Confined Space: NO

Health and Safety Concerns: Parking, general/typical

Cell Reception:	YES ✓ NO ___	Site Owner Info:	CoBI ROW

SITE PHOTOS

Photo No. 1	Facing upstream looking at culvert outlet & sampling area
Photo No. 2	Close-up facing upstream of culvert outlet
Photo No. 3	~~NA~~ Inlet area / inlet pipe - facing downstream
Photo No. 4	NA

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	2 of 2
Loc ID:	SE #20

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	No
Location for Sampling Gear:	Outlet side of culvert / creek crossing
Sampling Gear / Speciality Equipment:	Could use any selected at outlet side or grab sampling at either end
~~Outfall~~ Sampling Location Description:	LTM sampling at outfall side of culvert, room for gear enclosure

FLOW MONITORING:	
Channel Type / Description	32" SBC outfall culvert to natural creek course
Flow Equipment:	Level logger / stilling well set-up w/ hand velocity measurements
Tidal Influence / Site Effects:	No

SITE TECHNICAL SPECIFICATIONS:			
Technical Measurements Collected ?		YES ___ NO ✓	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	Other Tech. Info.	32" SBC pipe

WATERSHED AND SITE LU/LC

General LU / LC Description:
LU: Residential
LC: Timberland, some open space, housing

GENERAL SITE NOTES:

- General site characteristics are favorable w/ parking being the biggest detractor
- Decent sampling site for LTM/grab (grab only on inlet side)

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	1 of 2
Date:	1/18/06
Time:	0955

LOCATION INFORMATION:

Location ID:		Primary Site Code:	SW	Secondary Site Code:	Crk
CoBI Site Area:	SNRS-Dripping Wt. Crk	CoBI Watershed Code:	SNRS	CoBI Site Owner Type:	CTLG
Location Description:	SE#21 Dripping Water Creek at Sunrise Drive				
Location Name:	Dripping Water Creek	Loc Coord. Ref System:	SPCS		
Lat. / Northing:	254898.56	Long. / Easting:	1227398.33		
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601	Horizontal Collection	EIM Method Code 13		
Other Location Info:	Site is bounded on both ends by private property				

ACCESS INFORMATION:

Site Access (Driving Directions,Vehicle, Personnel, etc.) Creek crosses Sunrise Dr. NE between NE Cascade Ave and NE Brackenwood Ln. Creek crossing ~150' N. of horse farm entrance

General Logistics: Parking (very tight!) along west side of Sunrise Dr south of creek crossing Not lighted, 24-hr. access, very narrow road shoulders

Traffic Control: Busy road, 2-lane 35-mph zone, Van hazards/strobe & personnel safety vest rec'd - No addition traffic control required

Confined Space: No

Health and Safety Concerns: Traffic #1, general/typical

Cell Reception:	YES ✓ NO ___	Site Owner Info:	CoBI (extending from road crossing only)

SITE PHOTOS

Photo No. 1	Facing towards culvert and upstream of road drainage
Photo No. 2	Facing towards culvert downstream from roadside
Photo No. 3	Facing upstream (Dripping Water Creek)
Photo No. 4	

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: SE#21

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	NO
Location for Sampling Gear:	Sampling would be best at culvert outfall, however, access + property ownership could be an issue - sampling at culvert inlet is adequate
Sampling Gear / Speciality Equipment:	Any type selected would work - LTM set-up would work at inlet side of culvert
~~Outfall~~ Sampling Location Description:	Sampling location would represent main creek course + two main trib. drainage systems

FLOW MONITORING:	
Channel Type / Description	Pipe (24" dia) is not ideal or very well suited for flow measurements, but would likely provide best available opportunity at this location (angled, choked)
Flow Equipment:	Hand measurements at pipe inlet, if cleared of debris then A-V meter may work. Flow measurements may also be collected on downstream side of culvert
Tidal Influence / Site Effects:	No tide effects

SITE TECHNICAL SPECIFICATIONS:			
Technical Measurements Collected ?		YES ___ NO ✓	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	Other Tech. Info.	

WATERSHED AND SITE LU/LC

General LU / LC Description:
LU: Residential, ranchette, grazing
LC: Timberland, some open spaces, marshy - low lying

GENERAL SITE NOTES:

- Site is average to sl. below average for all characteristics
- May be ~~a~~ best suited for a grab sample station and hand flow measurements
- Traffic / road parking biggest hazard

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	1 of 2
Date:	11/17/2006
Time:	1403

LOCATION INFORMATION:

Location ID:		Primary Site Code:	SW	Secondary Site Code:	CRK
CoBI Site Area:	PTMD - Coho Creek	CoBI Watershed Code:	PTMD	CoBI Site Owner Type:	CTLG
Location Description:	SE#24 Coho Creek @ Hidden Cove Estates trail				
Location Name:	Coho Creek			Loc Coord. Ref System:	SPCS
Lat. / Northing:	257686.87			Long. / Easting:	1220935.51
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601			Horizontal Collection	EIM Method Code 13
Other Location Info:	Access to site via foot trail at Hidden Cove Estates - not from HC road				

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.): Hidden Cove (HC) road to Phelps Road to Cambridge Crest Road (enterance to HC Estates), turn right onto Cambridge Crest and park along street across from #66 (builder's lot). Trail is behind house

General Logistics: Walk along trail to where a small foot bridge crosses Coho Creek. Down stream from bridge is the intended sampling location. While walking trail to bridge 1st "Y" take left, 2nd "Y" take right, follow downhill to bridge (~1/4 mile)

Traffic Control: Site is not lighted, 24-hr access

→ None required at site; although there may be parking issues on street

Confined Space: No

Health and Safety Concerns: General/typical

Cell Reception:	YES ✓ NO ____	Site Owner Info:	CoBI ROW

SITE PHOTOS

Photo No. 1	Facing Upstream
Photo No. 2	Facing downtrail towards bridge
Photo No. 3	NA
Photo No. 4	NA

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: SE #24

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	No
Location for Sampling Gear:	downstream from bridge - creek center
Sampling Gear / Speciality Equipment:	Rec'ed grab station - although an LTM set-up could be completed
~~Outfall~~ Sampling Location Description:	Sample directly from creek center downstream from bridge 1 foot

FLOW MONITORING:	
Channel Type / Description	Natural creek course
Flow Equipment:	Manual methods rec'ed
Tidal Influence / Site Effects:	No

SITE TECHNICAL SPECIFICATIONS:			
Technical Measurements Collected ?		YES ___ NO ✓	If Yes, Report Measurements on Page 3
Site Drawing #:	✓	Other Tech. Info.	

WATERSHED AND SITE LU/LC

General LU / LC Description: LU: Residential, recreational
LC: Timberland, under brush

GENERAL SITE NOTES:

- Site distance from road makes this a moderately difficult logisitical location
- At this time creek has moderate flow, ~5'-7' wide (near bridge) w/ ~ ave 3" of water flow

* May refer to this site as Coho Creek bridge location

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Date: 1/18/06
Time:

LOCATION INFORMATION:

Location ID:		Primary Site Code:	SW	Secondary Site Code:	Crk - clv
CoBI Site Area:	SNRS - Pt. Monroe	CoBI Watershed Code:	SNRS	CoBI Site Owner Type:	CTLG
Location Description:	SE #26 Pt. Monroe Lagoon Creeklet at Fay Bainbridge SP				
Location Name:	Pt. Monroe Lagoon Creeklet	Loc Coord. Ref System:	SPCS		
Lat. / Northing:	261629.93	Long. / Easting:	1227770.81		
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601	Horizontal Collection	EIM Method #13		
Other Location Info:	boundary b/w Fay Bainbridge SP and Pt. Monroe Lagoon – creek to lagoon				

ACCESS INFORMATION:

Site Access (Driving Directions,Vehicle, Personnel, etc.) Day Road E to Sunrise Dr. NE (head N) to Sharp curve – take Pt. Monroe Dr. NE (rt) downhill to creek crossing (culvert) where lagoon comes ~~closet~~ closest to road

General Logistics: Park on gravel pull-off just beyond creek crossing, ample room for van, partially lighted, 24-hr access

Traffic Control: Skinny 1.5 lane road, not busy but cars/trucks use on a steady basis no additional controls required

Confined Space: No

Health and Safety Concerns: General/typical, Safety vests & van strobe rec'd

Cell Reception:	YES ✓ NO ___	Site Owner Info:	CoBI ROW

SITE PHOTOS

Photo No. 1	Facing upstream - pipe/~~tag~~ impoundment pond area
Photo No. 2	Facing into HDPE pipe on inlet side
Photo No. 3	View looking at outlet side of HDPE pipe
Photo No. 4	Looking down at conveyance pipe (water coming from FBSP parking Grate)

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: SE#26

WATER QUALITY AND SAMPLE COLLECTION:

Tidal Influence / Site Effects:	Yes at or near road crossing (where small impoundment pond 10'x25'x1') but ~20-30' upstream from impoundment no tidal influence
Location for Sampling Gear:	~20-30' upstream from impoundment pond inlet, within natural creek course
Sampling Gear / Speciality Equipment:	~~Eq~~ Either grab or LTM gear would work here
~~**Outfall**~~ **Sampling Location Description:**	Within main creek course

FLOW MONITORING:

Channel Type / Description	24" SB HDPE (1" thick) seamless pipe
Flow Equipment:	A-V meter or possible hand measurements within creek course (in pipe)
Tidal Influence / Site Effects:	Yes, at least partially tide influenced, but always has a positive flow component

SITE TECHNICAL SPECIFICATIONS:

Technical Measurements Collected ?		YES ___ NO ✓	**If Yes, Report Measurements on Page 3**
Site Drawing #:	NO	**Other Tech. Info.**	24" SB seamless HDPE pipe

WATERSHED AND SITE LU/LC

General LU / LC Description:

LU: Park/recreation, residential

LC: Timberland, open spaces and sub-urban development

GENERAL SITE NOTES:

- Good overall site characteristics
- Site could be better used as an outfall monitoring location then a surface water loc.

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
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Date:	1/17/2006
Time:	1316

LOCATION INFORMATION:

Location ID:		Primary Site Code:	SW	Secondary Site Code:	Crk-clv
CoBI Site Area:	MZBY - Manzi Crk	CoBI Watershed Code:	MZBY	CoBI Site Owner Type:	CTLG
Location Description:	SE #27 Manzanita Creek at Peterson Hill Rd				
Location Name:	Manzanita Creek			Loc Coord. Ref System:	SPCS
Lat. / Northing:	250748.52			Long. / Easting:	1216742.24
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601			Horizontal Collection	EIM Method #13
Other Location Info:					

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.) Miller Rd to Peterson Hill Rd NE (head N), proceed to bottom of hill where creek is culverted across road - location on west side of road across from Manzan Watershed sign (1) See note in "General Site Notes" section

General Logistics: Park at small gravel area adjacent to watershed sign, room for van, site not lighted, small 2-lane road w/ little to no shoulder

Traffic Control: Pull off of road as far as possible, but not too far. Road does not have a high amount of traffic but van hazards / strobe & personnel safety vest should be used

Confined Space: No

Health and Safety Concerns: General / typical, traffic, fast moving water in creek / culvert junction

Cell Reception:	YES ✓ NO ____	Site Owner Info:	CoBI ROW

SITE PHOTOS

Photo No. 1	Facing upstream
Photo No. 2	Close up of culvert outlet
Photo No. 3	Facing downstream
Photo No. 4	Facing northwards looking at road / general site area

No. 5 Inlet side of culvert, facing downstream

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: SE #27

WATER QUALITY AND SAMPLE COLLECTION:

Tidal Influence / Site Effects:	No
Location for Sampling Gear:	West side - south end of concrete buttress, plenty of room for pad/enclosure
Sampling Gear / Speciality Equipment:	Any selected method - LTM / Isco rec'ed
Outfall Sampling Location Description:	Culvert outlet side - sample below culvert (Manzan Crk) & side tributary

FLOW MONITORING:

Channel Type / Description	Re-worked "natural" creek channel w/ gravelly-rocky bottom ~5' wide and ave 6-7" deep
Flow Equipment:	Level logger / stilling well
Tidal Influence / Site Effects:	None

SITE TECHNICAL SPECIFICATIONS:

Technical Measurements Collected ?		**YES** ✓ **NO** ___	**If Yes, Report Measurements on Page 3**
Site Drawing #:	NA	**Other Tech. Info.**	

WATERSHED AND SITE LU/LC

General LU / LC Description: LU: Residential, agricultrual / ranchette's
LC: timberland

GENERAL SITE NOTES:

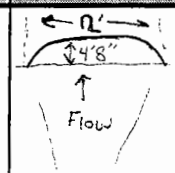
- Good overall site, good flow measurement and sampling location
- Measurements ~~& flow~~ & sampling should be collected below confluence of main and side ~~tributarys~~ tributaries
- All other site characteristics are favorable
- Although the City has ROW to access the culvert and associated bulkhead, the inlet side is located on private property - which has been fenced off. Property owner (Einar Kloven) has verbally agreed to allow access for program use on a limited basis. Call CoBI or TEC project managers to arrange access, if necessary

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations
Technical Specifications

LOCATION ID:	SE #27	Page 3 of	3

VAULT SPECS

Outfall / Pipe ID	Vault Entrance Dia (IN)	Maximum Vault Depth to Grade (FT)	Vault Dia at Working Depth (IN)	Main Inlet Pipe Dia (IN)	Main Outlet Pipe Dia (IN)	Outlet Piping Type	No. of Other Inlet Pipes Intersecting Vault / Dia Range (IN)	Tidally Influenced Y/N	Flow or Standing Water Thickness (IN)	Measured/ Estimated Flow Velocity F/S	Channel Geometry at or Near Measurement Point	Sediment / Gravel Thickness in Pipe (IN)
Manzan Crk	NA	NA	NA	132" culvert	~~132"~~ 144" culvert	CMP	NA	NO	~~mod~~ ~~high~~ 12"	mod-high	ST	

STREAM SPECS

Stream WRIA No.	Stream Width (IN / FT)	Ave. Stream Depth (IN)	Channel Geometry	Channel Bottom	Culvert ~~Entrance~~ Exit Description	Comments / Other
Manzan Crk	~5	6-7"	Straight, narrow, pronounced center course	rocky	Culvert exits into stream course just below where trib enters into main channel, water from main course makes a sharp 90° bend at confluence before becoming a straight channel	Creek flow measurements should be collected downstream of confluence via level logger/stilling well and hand velocity measurements

CB = catch basin
CLV = culvert pipe
CMP = corregated metal pipe
CRK = creek
DD = drainage ditch
F = flow to an undetermined depth
Grated = grated entrance to measuring site
High = high flow velocity (>10 f/s)
Low = low flow velocity (<1 f/s)
MH = manhole
Mod = moderate flow velocity (1-10 f/s)
NA = not applicable
NM = not measured
Offset = indicates vault entrance is partially obstructed such that its true entrance diameter is reduced to a smaller size
OTB = outfall to beach front or back bay area
SAVH = varied pipe geometry, sharp entry angles and various inflow heights
SLAC = entrance pipes slightly angled into a convergence
SBC = smooth bore concrete
ST = straight pipe run
TC = terracotta pipe
TeD = pipe Tee divertor
TG = tide gate, flush preventor
UND = undetermined
V = vault
WS = weir structure

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

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Time:	1502

LOCATION INFORMATION:

Location ID:		Primary Site Code:	SW	Secondary Site Code:	Crk
CoBI Site Area:	FLBY	CoBI Watershed Code:	FLBY	CoBI Site Owner Type:	CTLG
Location Description:	SE #34 Issei Creek - East Fork				
Location Name:	East Fork Issei Creek		Loc Coord. Ref System:	SPCS WA North 4601	
Lat. / (Northing):	241324.47		Long. / (Easting):	1213348.71	
Horizontal Ref. Datum Code:	NAD 1983		Horizontal Collection	13 (EIM code method)	
Other Location Info:	Site located either at mouth of culvert exit or downstream at convergence				

ACCESS INFORMATION:

Site Access (Driving Directions,Vehicle, Personnel, etc.)
Miller Road NE to NE Battle Point RD - approximately 30-40yds from Miller/Battle Point intersection Issei Crk crosses beneath road surface in a large culvert pipe. Park along wide pull-off spot north side of road

General Logistics: Site accessible 24-hrs/day, not lighted, access sampling site by stepping over guard rail and walk down short moderate bank - area could be prone to flooding

Traffic Control: None required by City, however there is a fair amount of traffic on Miller Rd and Battle Point Rd. see a decent volume as well. When parked at pull-off van strobe light should be used, personnel safety vests required, caution entering or leaving Miller Rd.

Confined Space:
No, however site activities may involve working entirely or partially inside the culvert pipe (96") for short periods of time

Health and Safety Concerns: Traffic, possible deep or fast moving water, working in or around culvert outlet

Cell Reception:	YES ✓ NO ___	Site Owner Info:	CoBI

SITE PHOTOS

Photo No. 1	Facing upstream (northwards) at culvert outlet / crk. interface
Photo No. 2	Looking down (downstream/south) from atop culvert top - roadway
Photo No. 3	Looking downstream beyond convergence spot
Photo No. 4	

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: SE #34

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	No tidal effects at site or downstream at convergence point
Location for Sampling Gear:	There is amble room at this site for automated sampling gear / enclosure etc.. Gear could be ~~location~~ located at culvert outlet or downstream at convergence
Sampling Gear / Speciality Equipment:	Automated gear is reccommended, however grab samples could be easily collected
Outfall Sampling Location Description:	(2) sampling location choices: #1 direct at the culvert outlet (east fork only) or #2 at E/W Forks convergence point ~30-40 yds downstream
FLOW MONITORING:	
Channel Type / Description	Natural creek channel/system flows into and out of a corregated metal culvert pipe (96"dia) and back to a natural stream course - rocky bottom
Flow Equipment:	Several options: (Best) = stilling well w/ level logger & periodic flow measurements, (Ok) = A-V meter inside culvert, (Maybe possible) = weir at culvert outlet
Tidal Influence / Site Effects:	None noted

SITE TECHNICAL SPECIFICATIONS:			
Technical Measurements Collected ?		YES ✓ NO ___	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	Other Tech. Info.	NA

WATERSHED AND SITE LU/LC

General LU / LC Description: - Some low % residential and commercial, mostly timberland / forested - LC at site is forest cover w/ dense underbrush, 2-lane roads to North of site and to east of site - marshy areas surround creek's lower reachs as well as its course north of the site through the Great Forest

GENERAL SITE NOTES:

- Good overall site (all characteristic) at one of the island moderately sized perennial creeks
- Water quality / water sampling could be conducted at either the culvert outlet (ensuring data collection from / segregation of the east fork) or from a convergence point a short distance down stream where both the east and west forks could be tested effeciently

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations
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LOCATION ID:	SE#34	Page 3 of	3

VAULT SPECS

Outfall / Pipe ID	Vault Entrance Dia (IN)	Maximum Vault Depth to Grade (FT)	Vault Dia at Working Depth (IN)	Main Inlet Pipe Dia (IN)	Main Outlet Pipe Dia (IN)	Outlet Piping Type	No. of Other Inlet Pipes Intersecting Vault / Dia Range (IN)	Tidally Influenced Y/N	Flow or Standing Water Thickness (IN)	Measured/ Estimated Flow Velocity F/S	Channel Geometry at or Near Measurement Point	Sediment / Gravel Thickness in Pipe (IN)
NA	NA	NA	NA	96"	96"	CMP	None visible, maybe roadway drains	N	Flowing, 8-12"	Moderate	Rocky rounded bottom	16-24"

STREAM SPECS – Beyond Culvert Outlet

Stream WRIA No.	Stream Width (IN / FT)	Ave. Stream Depth (IN)	Channel Geometry	Channel Bottom	Culvert Entrance Description	Comments / Other
	8-20	~6"	Varied, rocky	Rocky,		

CB = catch basin
CLV = culvert pipe
CMP = corregated metal pipe
CRK = creek
DD = drainage ditch
F = flow to an undetermined depth
Grated = grated entrance to measuring site
High = high flow velocity (>10 f/s)
Low = low flow velocity (<1 f/s)
MH = manhole
Mod = moderate flow velocity (1-10 f/s)
NA = not applicable
NM = not measured
Offset = indicates vault entrance is partially obstructed such that its true entrance diameter is reduced to a smaller size
OTB = outfall to beach front or back bay area
SAVH = varied pipe geometry, sharp entry angles and various inflow heights
SLAC = entrance pipes slightly angled into a convergence
SBC = smooth bore concrete
ST = straight pipe run
TC = terracotta pipe
TeD = pipe Tee divertor
TG = tide gate, flush preventor
UND = undetermined
V = vault
WS = weir structure

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
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Land Locations

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Date:	1/12/06
Time:	1600

LOCATION INFORMATION:

Location ID:		Primary Site Code:	SW	Secondary Site Code:	Crk - Civ
CoBI Site Area:	FLBY - SBC	CoBI Watershed Code:	FLBY	CoBI Site Owner Type:	CTLG
Location Description:	SE #35 Springbrook Creek at Fletcher Bay Road				
Location Name:	Springbrook Creek (SBC)	Loc Coord. Ref System:	SPCS		
Lat. / Northing:	239400.75	Long. / Easting:	1212938.03		
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601	Horizontal Collection	EIM Method Code #13		
Other Location Info:	Previously established ENVVEST site (flow monitoring currently ongoing)				

ACCESS INFORMATION:

Site Access (Driving Directions,Vehicle, Personnel, etc.) Fletcher Bay Rd. ~ 1/8 mile west of intersection w/ 4-way stop at Island Center (New Brooklyn / Miller / Fletcher / Fletcher Bay roads). Drive west on Fletcher Bay rd from 4-way stop to bottom of hill where SBC crosses the road - park on north side of road, walk down pathway to site / enclosure

General Logistics: Limited, tight parking on northern shoulder of road, steep foot path leads to site. Established pad/gear enclosure (Project ENVVEST site) are present atop of ~~to~~ concrete box culvert structure. Not lighted, 24-hr. access

Traffic Control: Pull off of road as far as possible - but be careful not to pull over too far - steep embankment. Use hazard flashers / van strobe when parked. Personnel should use safety vests.

Confined Space: No

Health and Safety Concerns: General / typical - Traffic and steep pathway are biggest hazards. Watch footing / slip-trip hazards atop culvert area, as there is an ~ 5-6 foot drop to water below

Cell Reception:	YES____ NO✓	Site Owner Info:	CoBI ROW

SITE PHOTOS

Photo No. 1	View facing eastwards - looking at equipment enclosure atop bulkhead
Photo No. 2	Facing upstream looking at weir pool area and culvert pipe
Photo No. 3	
Photo No. 4	

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: SE # 35

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	No tidal effects at site
Location for Sampling Gear:	Equipment enclosure already constructed at site
Sampling Gear / Speciality Equipment:	Set-up infrastructure exists for auto-sampling gear
Outfall Sampling Location Description:	Hard piping intake lines from enclosure to wier pool near culvert outlet

FLOW MONITORING:	
Channel Type / Description	Smooth bore plastic resin culvert pipe, slightly angled prior to outfall to wier pool
Flow Equipment:	Auto level readings (Isco 4110 Ultrasonic) calculated to existing weir dimensions for flow assessment
Tidal Influence / Site Effects:	No tidal effects

SITE TECHNICAL SPECIFICATIONS:			
Technical Measurements Collected ?		YES ✓ NO ___	If Yes, Report Measurements on Page 3
Site Drawing #:	006	Other Tech. Info.	

WATERSHED AND SITE LU/LC

General LU / LC Description: LU = lite commercial / retail, farming - ranching, residential

LC = open fields to south; timberland / forest at site and to west & north; some development (commercial) to the west; impervious roadway surface adjacent to south - mostly fields & wooded

GENERAL SITE NOTES:

- Parking and steep walkway bank are only limiting logistical factors
- Good sampling & flow monitoring site
- Site has current flow & rain monitoring gear, which are actively recording
- Equipment enclosure in place w/ hard-fastened sample lines + staff gauge
- Weir site (weir pool used in flow measurement) - 3rd most developed area on the island

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations
Technical Specifications

LOCATION ID:	SE #35	Page 3 of	3

VAULT SPECS

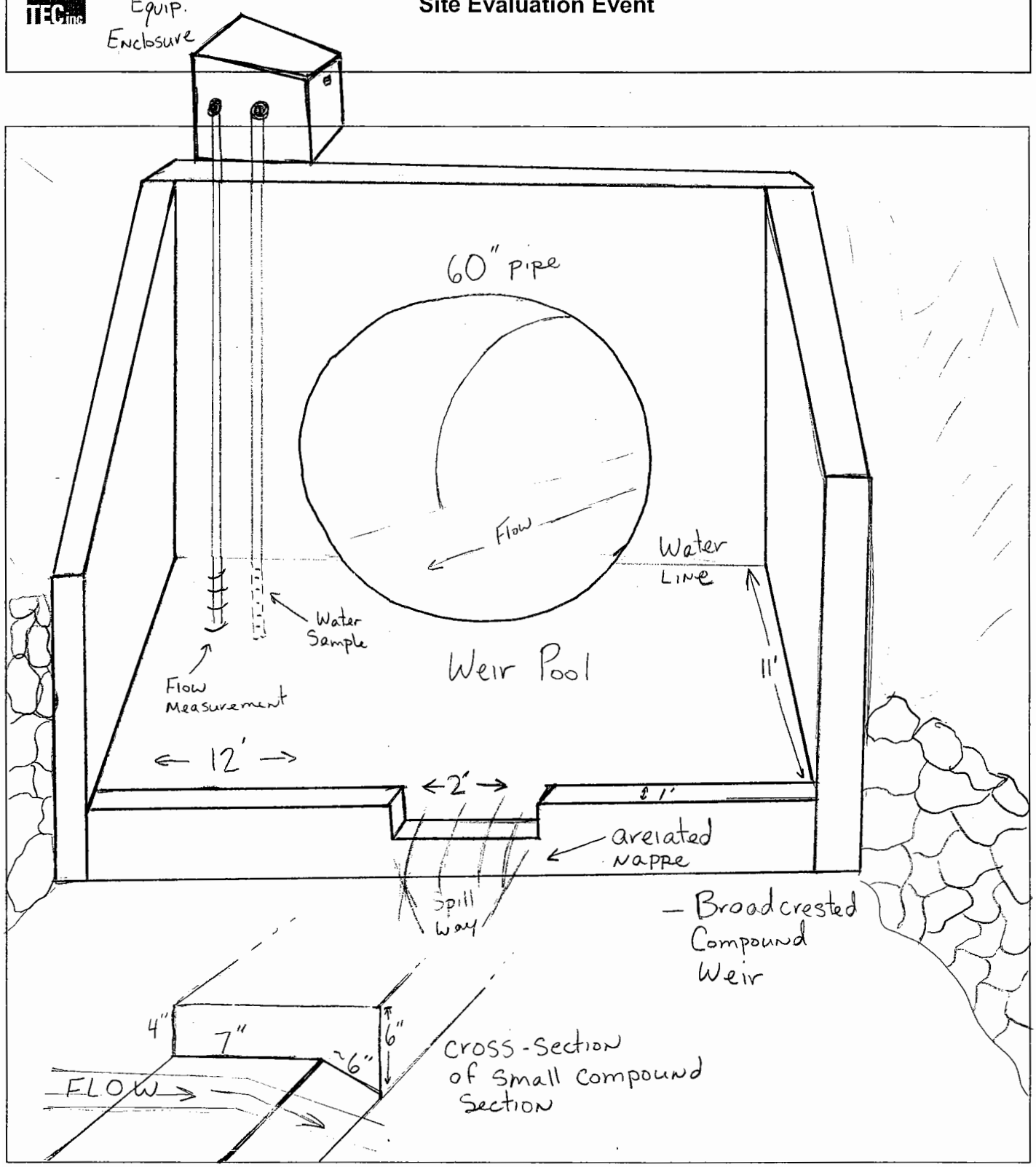
Outfall / Pipe ID	Vault Entrance Dia (IN)	Maximum Vault Depth to Grade (FT)	Vault Dia at Working Depth (IN)	Main Inlet Pipe Dia (IN)	Main Outlet Pipe Dia (IN)	Outlet Piping Type	No. of Other Inlet Pipes Intersecting Vault / Dia Range (IN)	Tidally Influenced Y/N	Flow or Standing Water Thickness (IN)	Measured/ Estimated Flow Velocity F/S	Channel Geometry at or Near Measurement Point	Sediment / Gravel Thickness in Pipe (IN)
	NA	NA	NA	60"	60"	Smooth bore plastic	0	N	Channel varies / pool = ~24"	Mod	Weir pool	Varies, ave = ~9"

STREAM SPECS

Stream WRIA No.	Stream Width (IN / FT)	Ave. Stream Depth (IN)	Channel Geometry	Channel Bottom	Culvert Entrance Description	Comments / Other
				Rocky		

CB = catch basin
CLV = culvert pipe
CMP = corregated metal pipe
CRK = creek
DD = drainage ditch
F = flow to an undetermined depth
Grated = grated entrance to measuring site
High = high flow velocity (>10 f/s)
Low = low flow velocity (<1 f/s)
MH = manhole
Mod = moderate flow velocity (1-10 f/s)
NA = not applicable
NM = not measured
Offset = indicates vault entrance is partially obstructed such that its true entrance diameter is reduced to a smaller size
OTB = outfall to beach front or back bay area
SAVH = varied pipe geometry, sharp entry angles and various inflow heights
SLAC = entrance pipes slightly angled into a convergence
SBC = smooth bore concrete
ST = straight pipe run
TC = terracotta pipe
TeD = pipe Tee divertor
TG = tide gate, flush preventor
UND = undetermined
V = vault
WS = weir structure

City of Bainbridge Island
Water Quality and Flow Monitoring Program
Site Evaluation Event



Drawing No. 006	**Drawing Date:** 1/12/06
Site Location: SE #35	**Drawing By:** DCM

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

TEC ENVIRONMENTAL MANAGEMENT

Page:	1 of 2
Date:	1/12/06
Time:	1400

LOCATION INFORMATION:

Location ID:		**Primary Site Code:**	SW	**Secondary Site Code:**	Crk
CoBI Site Area:	PLBH - Lower Schel-Chelb estuary	**CoBI Watershed Code:**	PLBH	**CoBI Site Owner Type:**	CTLG
Location Description:	SE# 38 Schel-Chelb creek at Baker Hill Rd				
Location Name:	Schel-Chelb Creek		**Loc Coord. Ref System:**	SPCS	
Lat. / Northing:	226064.42		**Long. / Easting:**	1216655.78	
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601		**Horizontal Collection**	EIM Method Code 13	
Other Location Info:	Culvert crossing downstream of estuary weir flow control structure				

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.) From Winslow center take Wyatt Wy east to Bucklin Hill Rd to Lynwood Center Rd to west on NE Baker Hill Rd to pull-off along north side of road. Stream Sign near stream-culvert crossing.

General Logistics: Adequate but narrow parking, accessible 24hrs/day, not lighted creek at either end of the culvert is easily accessible - south side is preferred for both sampling and/or flow monitoring

Traffic Control: Busy 2-lane road w/ a moderate traffic flow (car speeds noted to be 30-50 mph - use caution). No official control measures required - however vehicle blinkers/strobe and personnel high-visibility vests rec'ed

Confined Space: No

Health and Safety Concerns: Traffic, high water/large flow volumes may be possible, Slippery bank

Cell Reception:	YES ✓ NO ___	**Site Owner Info:**	CoBI ROW

SITE PHOTOS

Photo No. 1	Facing upstream at culvert outfall
Photo No. 2	Facing downstream looking at culvert inlet
Photo No. 3	NA
Photo No. 4	NA

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page: 2 of 2
Loc ID: SE #38

WATER QUALITY AND SAMPLE COLLECTION:

Tidal Influence / Site Effects:	Site is not tidally influenced as far as water chemistry is concerned (conductivity of salinity effects), however higher tides may effect flow rate(?)
Location for Sampling Gear:	Sampling gear (long-term) could easily be accommodated at culvert outside (south)
Sampling Gear / Speciality Equipment:	Long term water sampling / quality gear could be used at this location
Outfall Sampling Location Description:	Sampling, no matter the gear type, is rec'ed at or slightly downstream from the outlet side of the culvert

FLOW MONITORING:

Channel Type / Description	Channel is a mostly natural stream course to the south, somewhat altered to the north (directed/engineered channel) and culverted beneath road
Flow Equipment:	Rec'ed stilling well / level logger, staff gauge, manual measurements (for either supplement to level logger or as sole source)
Tidal Influence / Site Effects:	Tides (high-high) may effect flow rate - upstream from culvert there's a weir-flow control structure * this may be useful for flow meas.

SITE TECHNICAL SPECIFICATIONS:

Technical Measurements Collected ?		**YES ___ NO ✓**	**If Yes, Report Measurements on Page 3**
Site Drawing #:	No	**Other Tech. Info.**	48" CMP culvert (~40-50' length)

WATERSHED AND SITE LU/LC

General LU / LC Description:

LU = Estuary area to north, low-land scrub forest and timberland, low density residential, rural mixed use

LC = forested, marshy areas surrounding site

GENERAL SITE NOTES:

- Site has favorable general & logistical attributes
- Traffic & parking are biggest Health & Safety concerns
- Favorable location for long term WQ, sampling and flow monitoring
- Largest estuary system on island
- Schel-Chelb is 2nd largest individual crk & 3rd largest overall surface water flow regime on the island

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	1 of 2
Date:	1/12/06
Time:	1135

LOCATION INFORMATION:

Location ID:		**Primary Site Code:**	SW	**Secondary Site Code:**	Crk-Clv
CoBI Site Area:	BLKH - Macs Dam Crk	**CoBI Watershed Code:**	BLKH	**CoBI Site Owner Type:**	CTLG
Location Description:	SE#41 Macs Dam Creek at Blakely Ave / Country Club Rd NE				
Location Name:	Mac's Dam Creek			**Loc Coord. Ref System:**	SPCS
Lat. / Northing:	222541.21			**Long. / Easting:**	1223831.89
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601			**Horizontal Collection**	EIM Method Code #13
Other Location Info:	loc access is actually wholly on Country Club Rd.				

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.)	Blakely Ave NE drive west, turn Left (south) onto NE Country Club Rd.; ~20yrds, pull off onto north gravel shoulder
General Logistics:	Parking adequate for 2-3 vehicles on north side of road, gravel pull-off access via road shoulder to south, 24-hr. access, not lighted
Traffic Control:	Moderately busy 2-lane road - Amber van strobe + personnel high-vis vests rec'ed; no other control required
Confined Space:	NO
Health and Safety Concerns:	General/typical, working near flowing water/culvert entrance

Cell Reception:	YES ✓ NO ___	**Site Owner Info:**	CoBI ROW

SITE PHOTOS

Photo No. 1	Facing downstream looking at stream/culvert intersection
Photo No. 2	Facing upstream looking down at inlet (culvert) area from road shoulder
Photo No. 3	NA
Photo No. 4	NA

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	2 of 2
Loc ID:	SE#41

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	No tidal influence at sampling location
Location for Sampling Gear:	Possible location for enclosure / pad at upstream (south side) side of creek / culvert
Sampling Gear / Speciality Equipment:	Any selected method would work
~~Outfall~~ Sampling Location Description:	Location is natural creek course entering a culvert which conveys creek beneath Country Club Road

FLOW MONITORING:	
Channel Type / Description	Flow channel is 36" SBC pipe w/ little to no gravel in bottom of pipe, flow at time of visit is mod to high (1-10+fps)
Flow Equipment:	hand or A-V measurements would work fine
Tidal Influence / Site Effects:	No tidal influence

SITE TECHNICAL SPECIFICATIONS:			
Technical Measurements Collected ?		YES ___ NO ✓	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	Other Tech. Info.	36" SBC pipe

WATERSHED AND SITE LU/LC

General LU / LC Description:

LU: Residential

LC: Forested timberland

GENERAL SITE NOTES:

- Good flow measurement and sample aquisition site
- Good site characteristics (access, general, parking, H+S, etc.)

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	1 of 2
Date:	1/12/06
Time:	1220

LOCATION INFORMATION:

Location ID:		Primary Site Code:	SW	Secondary Site Code:	Crk-clv
CoBI Site Area:	South central portion of BLKH	CoBI Watershed Code:	BLKH	CoBI Site Owner Type:	CTLG
Location Description:	SE#42 Crane Lake Creek at Country Club Road				
Location Name:	Crane Lake Creek			Loc Coord. Ref System:	SPCS
Lat. / Northing:	220963.33			Long. / Easting:	1225842.07
Horizontal Ref. Datum Code:	NAD1983 WA north 4601			Horizontal Collection	EIM Method code #13
Other Location Info:	Principle drainage out of "The Summit" subdivision				

ACCESS INFORMATION:

Site Access (Driving Directions,Vehicle, Personnel, etc.)
Country Club Rd. – drive east, ~1/4 to 3/8 miles where creek crosses road b/w building lots B+C of subdivision homes (just east of address 10374 NE C.C. road)

General Logistics: Parking ~50 yds to west of creek/road crossing, not lighted, 24-hr. access

Traffic Control: Busy 2-lane road, safety vests and vehicle strobe are strongly rec'ed

Confined Space: No

Health and Safety Concerns: General/typical – traffic

Cell Reception:	YES ✓ NO ____	Site Owner Info:	CoBI ROW

SITE PHOTOS

Photo No. 1	Facing downstream towards culvert
Photo No. 2	NA
Photo No. 3	↓
Photo No. 4	↓

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page: 2 of 2
Loc ID: SE #42

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	No
Location for Sampling Gear:	Not much space around culvert inlet available
Sampling Gear / Speciality Equipment:	Rec'ed grab (although a temp LTM set-up could be placed here)
~~Outfall~~ Sampling Location Description:	Natural creek entering a road culvert, Sample at enterance area

FLOW MONITORING:	
Channel Type / Description	24" SBC pipe, winding creek course prior to culvert inlet, gravel base unknown
Flow Equipment:	Could place A-V meter, but hand measurements or other engineered device (~~etc~~ i.e. weirplate) rec'ed
Tidal Influence / Site Effects:	No

SITE TECHNICAL SPECIFICATIONS:			
Technical Measurements Collected ?		YES ___ NO ✓	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	Other Tech. Info.	24" SBC pipe, flow mod

WATERSHED AND SITE LU/LC

General LU / LC Description: LU = low density residential, timberland, marshy areas, open fields,

LC = forested, low-land under brush, secondary roads and driveways
low % impervious surface

GENERAL SITE NOTES:

- Site is a good ~~candidate~~ candidate for grab sampling and for hand/manual flow monitoring
- Other site characteristics adequate
- Site collects both stream and roadway ditch runoff

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	1 of 3
Date:	1/12/06
Time:	1530

LOCATION INFORMATION:

Location ID:		Primary Site Code:	SW	Secondary Site Code:	Crk - clv
CoBI Site Area:	FLBY - Central WS Area	CoBI Watershed Code:	FLBY	CoBI Site Owner Type:	CTLG
Location Description:	SE#45 - Issei Crk West Fork				
Location Name:	West Fork Issei Crk	Loc Coord. Ref System:	SPCS		
Lat. / Northing:	241471.29	Long. / Easting:	1213280.90		
Horizontal Ref. Datum Code:	NAD 1983 WA north 4601	Horizontal Collection	EIM Method Code #13		
Other Location Info:	WF Issei Crk converges w/ Main branch short distance downstream culvert outfall				

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.)
Miller Rd to west on NE Battle Point Drive. Park north side of road ~ 30-40yds from intersect above. Creek crosses beneath road via a culvert. Park along wide pull-off spot north side of road

General Logistics: Site accessible 24-hrs/day, not lighted, access sampling site by stepping over guard rail and walk down to culvert ~~off~~ outfall (west, ~75', from main channel culvert)

Traffic Control: None required by City. However busy road and narrow parking on opposite side of road warrant personnel safety vests and vehicle strobe

Confined Space: No

Health and Safety Concerns: Traffic, area around West Fork and Main branch Issei Crk may be prone to flooding at times

Cell Reception:	YES ✓ NO ____	Site Owner Info:	CoBI ROW

SITE PHOTOS

Photo No. 1	Facing upstream looking at culvert ~~off~~ outfall back to its natural creek course
Photo No. 2	ND
Photo No. 3	↓
Photo No. 4	

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: SE#45

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	No tidal effects
Location for Sampling Gear:	Could locate gear at or near culvert outfall, however a better spot a short distance downstream exists at convergent point
Sampling Gear / Speciality Equipment:	Auto gear rec'ed, however grab gear would work fine
Outfall Sampling Location Description:	Sampling near outlet to culvert would segregate the West Fork – Sampling at convergent point would test the combined system
FLOW MONITORING:	
Channel Type / Description	beyond culvert their exists a natural stream channel – culvert is a ~~smooth~~ corregated straight run pipe w/ no sediment
Flow Equipment:	Stilling well / level logger at or beyond convergent point – A.V or manual measurements at culvert mouth
Tidal Influence / Site Effects:	None noted

SITE TECHNICAL SPECIFICATIONS:			
Technical Measurements Collected ?		YES ✓ NO ___	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	Other Tech. Info.	Culvert = 18" Corregated HDPE

WATERSHED AND SITE LU/LC

General LU / LC Description: Same as Loc SE#34

GENERAL SITE NOTES:

- Good overall site logistical characteristics
- Flow measurements & sampling rec'ed at convergent point or beyond

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations
Technical Specifications

LOCATION ID:	SE# 45	Page 3 of	3

VAULT SPECS

Outfall / Pipe ID	Vault Entrance Dia (IN)	Maximum Vault Depth to Grade (FT)	Vault Dia at Working Depth (IN)	Main Inlet Pipe Dia (IN)	Main Outlet Pipe Dia (IN)	Outlet Piping Type	No. of Other Inlet Pipes Intersecting Vault / Dia Range (IN)	Tidally Influenced Y/N	Flow or Standing Water Thickness (IN)	Measured/ Estimated Flow Velocity F/S	Channel Geometry at or Near Measurement Point	Sediment / Gravel Thickness in Pipe (IN)
					18"	4" Corregated HDPE	NA	No	5-6	Mod	ST	0"

STREAM SPECS

Stream WRIA No.	Stream Width (IN / FT)	Ave. Stream Depth (IN)	Channel Geometry	Channel Bottom	Culvert ~~Entrance~~ Outlet Description	Comments / Other
	2-4'	4-5"	INCISed & Narrow - Mostly straight to confluence	rocky, some Sand	HDPE culvert exits hillside ~12" above creek channel - water Springs down to Stream course	West Fork carries 10-20% of Issei Crk system - joins Main branch ~30-40 yrds downstream from outfall point

CB = catch basin
CLV = culvert pipe
CMP = corregated metal pipe
CRK = creek
DD = drainage ditch
F = flow to an undetermined depth
Grated = grated entrance to measuring site
High = high flow velocity (>10 f/s)
Low = low flow velocity (<1 f/s)
MH = manhole
Mod = moderate flow velocity (1-10 f/s)
NA = not applicable
NM = not measured
Offset = indicates vault entrance is partially obstructed such that its true entrance diameter is reduced to a smaller size
OTB = outfall to beach front or back bay area
SAVH = varied pipe geometry, sharp entry angles and various inflow heights
SLAC = entrance pipes slightly angled into a convergence
SBC = smooth bore concrete
ST = straight pipe run
TC = terracotta pipe
TeD = pipe Tee divertor
TG = tide gate, flush preventor
UND = undetermined
V = vault
WS = weir structure

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

TEC ENVIRONMENTAL MANAGEMENT

Page:	1 of 2
Date:	1/12/06
Time:	1000

LOCATION INFORMATION:

Location ID:	SE#47	Primary Site Code:	SW	Secondary Site Code:	DTH → Crk
CoBI Site Area:	EGDL - Rose Loop	CoBI Watershed Code:	EGDL	CoBI Site Owner Type:	CoBI ROW
Location Description:	West side Rose Loop Storm Water collection ditch @ outfall to McDonald Crk beyond road end				
Location Name:	McDonald Crk		Loc Coord. Ref System:	SPCS	
Lat. / Northing:	229886.75		Long. / Easting:	1222895.19	
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601		Horizontal Collection	EIM Method Code #13	
Other Location Info:	Ditch system conveys water down to ~~end~~ bottom of Rose Loop, continues in culvert to crk				

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.)
West side of Rose Loop, ditch system continues to a BMP structure at SW corner of loop (near utility pole), where storm water is conveyed through a CMP culvert until its outfall to McDonald Crk

General Logistics: Park near SW corner of Loop road (wide spot on shoulder) Upper BMP ditch water collection point is on CoBI ROW. However, narrow corridor down to outfall point & lower creek area may be on private property

Traffic Control: Very lite traffic, no issues other than parking

Confined Space: No

Health and Safety Concerns: Typical / General

Cell Reception:	YES ✓ NO ___	Site Owner Info:	CTLG (upper) / Private ? (lower)

SITE PHOTOS

Photo No. 1	Facing north downstream where ditch enters culvert pipe
Photo No. 2	Photo showing secondary sample point - grate location
Photo No. 3	View of culvert pipe terminus - spills into small ditch heading to creek
Photo No. 4	View towards south - culvert spillway ditch (to left) joins w/ terminus of McDonald Creek (~25-30 yds to Eagle Harbor to north) tidally influenced at this point

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	2 of 2
Loc ID:	SE #47

WATER QUALITY AND SAMPLE COLLECTION:

Tidal Influence / Site Effects:	No tide effects
Location for Sampling Gear:	Grab samples could be collected for ditch (east side of road) prior to water entering conveyance culvert or from grate ~20' SW of road (next to phone pole)
Sampling Gear / Speciality Equipment:	Grab
Outfall Sampling Location Description:	Sample at culvert inlet or at nearby grate location

FLOW MONITORING:

Channel Type / Description	Road side ditch
Flow Equipment:	Flow measurements by ~~hand~~ hand only
Tidal Influence / Site Effects:	None

SITE TECHNICAL SPECIFICATIONS:

Technical Measurements Collected ?		YES ___ NO ✓	**If Yes, Report Measurements on Page 3**
Site Drawing #:	NA	**Other Tech. Info.**	

WATERSHED AND SITE LU/LC

General LU / LC Description:

LU: Residential

LC: Forested - timberland, residential neighborhood w/ large lots

GENERAL SITE NOTES:

- Good ditch sampling location (grab - only)
- Flow measurements by hand
- All other site characteristics are favorable (upper portion of site), however lower site at the ditch-culvert / crk interface may present access issues

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	1 of 2
Date:	1/18/06
Time:	1300

LOCATION INFORMATION:

Location ID:		Primary Site Code:	SW	Secondary Site Code:	Crk
CoBI Site Area:	BLKH- Tani Crk	CoBI Watershed Code:	BLKH	CoBI Site Owner Type:	CTLG
Location Description:	SE#52 Tani Crk at Country Club Rd in Blakely Harbor Park				
Location Name:	Tani Creek			Loc Coord. Ref System:	SPCS
Lat. / Northing:	221691.68			Long. / Easting:	1224306.73
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601			Horizontal Collection	EIM Method Code #13
Other Location Info:	Concise crk course enters into a small marshy area - then discharges across roadway via a culvert				

ACCESS INFORMATION:

Site Access (Driving Directions,Vehicle, Personnel, etc.)
Country Club Rd - creek crosses just to west of Fort Ward Rd.

General Logistics: Park at gravel trailhead lot ~~to~~ west of Fort Ward Rd., 24-hr access, Not lighted

Traffic Control: None required, but busy road - traffic vest required

Confined Space: No

Health and Safety Concerns: Traffic - Van strobe/hazard lights + personnel safety vests rec'ed

Cell Reception:	YES ✓ NO ___	Site Owner Info:	CoBI Row

SITE PHOTOS

Photo No. 1	Facing inlet side of culvert
Photo No. 2	Facing outlet side of culvert / outlet pool area
Photo No. 3	Looking downwards at Tani mouth ~80 yrds from outlet pipe
Photo No. 4	NA

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	2 of 2
Loc ID:	SE #52

WATER QUALITY AND SAMPLE COLLECTION:

Tidal Influence / Site Effects:	No
Location for Sampling Gear:	Outlet side of culvert pipe - enough room for gear enclosure if needed
Sampling Gear / Speciality Equipment:	Grab rec'd but LTM if desired
Outfall Sampling Location Description:	Sampling at outfall has main course + road drainage combined

FLOW MONITORING:

Channel Type / Description	Culvert = 18" SBC Creek at outfall = pool area that ~~exist~~ exits through 2nd culvert, then flows into natural channel
Flow Equipment:	Rec'd hand measurements only - water discharging from culvert is angled & aerated
Tidal Influence / Site Effects:	No

SITE TECHNICAL SPECIFICATIONS:

Technical Measurements Collected ?		YES ___ NO ✓	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	**Other Tech. Info.**	18" SBC

WATERSHED AND SITE LU/LC

General LU / LC Description:

LU = Residential, farming
LC = Timberland, open fields

GENERAL SITE NOTES:

- Smaller st creek, ~~st~~ flow measurement characteristics not favorable
- General logistics adequate
- Decent "grab" sampling site

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Date: 1/12/06
Time: 1045

LOCATION INFORMATION:					
Location ID:		Primary Site Code:	SW	Secondary Site Code:	CLV-CRK
CoBI Site Area:	BLKH- north side	CoBI Watershed Code:	BLKH	CoBI Site Owner Type:	CTLG
Location Description:	Blakely Falls Creek at Halls Hill Rd. SE#55				
Location Name:	Blakely Falls Creek	Loc Coord. Ref System:	SPCS		
Lat. / Northing:	222949.64	Long. / Easting:	1227586.28		
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601	Horizontal Collection	EIM Method #13		
Other Location Info:	Eagle Harbor (EH) drive is very narrow and winding road at location 55				

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.) EH Drive east, turns into Rockaway Beach Drive which turns into NE Halls Hill Rd - site is just west of Rockaway Bluff Rd.

General Logistics: Park on south side of road in gravel pullout. Not lighted. 24-hr access

Traffic Control: Blind corners and hilly - be careful pulling in and out of gravel parking spot - No other control required but personnel vests and van amber strobe recied

Confined Space: NO

Health and Safety Concerns: General/typical; deeper creek water at culvert outfall, steep bank slopes surround creek/culvert area

Cell Reception:	YES ✓ NO ____	Site Owner Info:	CoBI Row

SITE PHOTOS

Photo No. 1	Facing upstream looking into culvert outfall / creek pool
Photo No. 2	NA
Photo No. 3	NA
Photo No. 4	NA

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	2 of 2
Loc ID:	SE #55

WATER QUALITY AND SAMPLE COLLECTION

Tidal Influence / Site Effects:	No tide influence
Location for Sampling Gear:	South side of road for either grab or LTM gear / set-up
Sampling Gear / Speciality Equipment:	Any selected would work at site; rec. grab sample location
Outfall Sampling Location Description:	Outfall culvert on south side of road, 18" SBC pipe

FLOW MONITORING

Channel Type / Description	Culvert, 18" SBC on gentle angle, minor standing wave
Flow Equipment:	Any selected: hand measurements or A-V meter at culvert exit
Tidal Influence / Site Effects:	No tide influence

SITE TECHNICAL SPECIFICATIONS

Technical Measurements Collected ?		YES ___ NO ✓	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	Other Tech. Info.	18" SBC pipe

WATERSHED AND SITE LU/LC

General LU / LC Description:

LU: Residential

LC: Timberland

GENERAL SITE NOTES

- Decent flow and sampling location; although creek flow was moderate at time of visit location reported to be seasonal
- General / Traffic logistics are adequate

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Date: 1/12/06
Time: 0830

LOCATION INFORMATION:					
Location ID:		Primary Site Code:	SW	Secondary Site Code:	CLV-crk
CoBI Site Area:	NEGH - head of bay	CoBI Watershed Code:	NEGH	CoBI Site Owner Type:	CTLG
Location Description:	SE #62, Cooper Crk at Head of Bay well field				
Location Name:	Cooper Crk	Loc Coord. Ref System:	SPCS		
Lat. / Northing:	234282.97	Long. / Easting:	1219107.11		
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601	Horizontal Collection	EIM Method Code #13		
Other Location Info:	culvert, inlet at access enterance to well field pump station complex				

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.)
Wyatt Way west to Eagle Harbor Dr. spur, take right onto gravel drive, drive along gravel road, take left onto short access spur to pump complex

General Logistics: Parking on access spur driveway leading to pump house complex, room for at least two vehicles. Site has overhead light on nearby power-pole. 24-hr access

Traffic Control: No concerns, off of main roads

Confined Space: No

Health and Safety Concerns: general, possible concerns may arise from conducting any work at the enterance of the culvert pipe, high bank / rain swollen creek conditions could exist at times

Cell Reception:	YES ✓ NO ____	Site Owner Info:	CoBI ROW

SITE PHOTOS

Photo No. 1	Facing inlet side (downstream) Cooper Crk culvert
Photo No. 2	Facing outlet side (upstream) Cooper Crk culvert
Photo No. 3	Facing southwards toward access drive + pump house complex
Photo No. 4	NA

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: SE #62

WATER QUALITY AND SAMPLE COLLECTION:

Tidal Influence / Site Effects:	No tide effects
Location for Sampling Gear:	ample room for sampling enclosure/pad
Sampling Gear / Speciality Equipment:	Any selected gear would work, rec'ed LTM style site, but grab would be no problem
Outfall Sampling Location Description:	Both inlet and outlet portions of the culvert pipe (~40' run) are accessible at the site - creek runs through culvert. No well defined transition as pipe is filled w/ ~20+" of gravel. Could sample at either end of the culvert.

FLOW MONITORING:

Channel Type / Description	Creek flow into and through culvert while maintaining a nearly natural state the entire length. 72" CMP filled w/ 20+" of gravel
Flow Equipment:	Not well suited as an automatic flow monitoring station unless other engineering designs (weir installation, etc.) are instituted
Tidal Influence / Site Effects:	No tide effects

SITE TECHNICAL SPECIFICATIONS:

Technical Measurements Collected ?		**YES ___ NO ✓**	**If Yes, Report Measurements on Page 3**
Site Drawing #:	NA	**Other Tech. Info.**	72" CMP

WATERSHED AND SITE LU/LC

General LU / LC Description:
LU: Residential w/ acerage, timberland, well field
LC: forested, underbrush

GENERAL SITE NOTES:

- Site would be a good Sampling / physio-chem monitoring station for LTM
- Not well suited as a flow monitoring station in its current configuration, ~~Gou~~ flow could be obtained manually
- All other site characteristics are favorable

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	1 of 2
Date:	1/11/06
Time:	1511

LOCATION INFORMATION:

Location ID:		Primary Site Code:	SW	Secondary Site Code:	
CoBI Site Area:	NEGH - Winslow / Wyatt area	CoBI Watershed Code:	NEGH	CoBI Site Owner Type:	CTLG
Location Description:	SE #63, Sportsman Club Crk @ Wyatt Way				
Location Name:	Sportsman Club Crk @ Wyatt Wy	Loc Coord. Ref System:	SPCS		
Lat. / Northing:	233938.51	Long. / Easting:	1220904.99		
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601	Horizontal Collection	EIM Method Code #13		
Other Location Info:	Alt. loc to #7 (Gowen Rd site - below pond weir)				

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.)	Loc #63 just east of intersection of Wyatt and Gowen Pl NW, north side of Wyatt
General Logistics:	Narrow parking strip along north side (west bound) lane of Wyatt, gravelly, soft shoulder, not lighted
Traffic Control:	Busy road (2-lane), no formal controls required but personnel vests van hazard lights and amber strobe light highly rec'ed
Confined Space:	No
Health and Safety Concerns:	Traffic, parking, working near busy road, steep bank

Cell Reception:	YES ✓ NO ____	Site Owner Info:	CoBI ROW

SITE PHOTOS

Photo No. 1	Facing west looking perpendicular at the Sportsman Club Crk loc.
Photo No. 2	Facing South looking downstream into culvert pipe
Photo No. 3	NA
Photo No. 4	NA

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page: 2 of 2
Loc ID: SE#63

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	No
Location for Sampling Gear:	limited, may be determined by ROW dimensions, skid mounted enclosure would work best
Sampling Gear / Speciality Equipment:	Any type selected, LTM or grab would work well
~~Outfall~~ inlet Sampling Location Description:	Crk into concrete culvert (36" SBC), Sample at transition zone

FLOW MONITORING:	
Channel Type / Description	Flow monitoring from inside of 36" SBC pipe, A-V type site
Flow Equipment:	A-V rec'd, although manual or level logger techniques would work
Tidal Influence / Site Effects:	No

SITE TECHNICAL SPECIFICATIONS:			
Technical Measurements Collected ?		YES ___ NO ✓	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	Other Tech. Info.	36" SBC pipe

WATERSHED AND SITE LU/LC

General LU / LC Description:
LU: Residential / recreational
LC: Semi-wooded w/ some open areas, some ~~a~~ underbrush lining creek bank

GENERAL SITE NOTES:

- Site is suited as a LTM flow & sample location
- Mod to high creek flow w/ ~7"-8" of water flow
- ROW issues may exist
- Site access / logistics are not optimal, but workable

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	1 of 3
Date:	1/17/06
Time:	1109

LOCATION INFORMATION:

Location ID:		Primary Site Code:	PS (Storm water)	Secondary Site Code:	VLT / OFL
CoBI Site Area:	NEGH - Ferncliff	CoBI Watershed Code:	NEGH	CoBI Site Owner Type:	GTLG
Location Description:	SE#66 Eagle Outfall				
Location Name:	Eagle Outfall			Loc Coord. Ref System:	SPCS
Lat. / Northing:	232483.23			Long. / Easting:	1226980.02
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601			Horizontal Collection	EIM Method #13
Other Location Info:	Access via 16X24" grate near ⊕ road corner				

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.)	East, ~80', of intersection of Ferncliff and Winslow Way (grate on Winslow Wy, north side of street)
General Logistics:	Park along street, not lighted
Traffic Control:	None required, Van hazards / Strobe rec'd, personnel safety vests.
Confined Space:	Yes, tight (less than 16"w) entrance (only if flow measurement gear is to be placed into vault)
Health and Safety Concerns:	CSE, traffic

Cell Reception:	YES ✓ NO ____	Site Owner Info:	CoBI Row

SITE PHOTOS

Photo No. 1	Facing East
Photo No. 2	Facing downwards
Photo No. 3	Close-up of vault interior
Photo No. 4	NA

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: SE #66

WATER QUALITY AND SAMPLE COLLECTION:

Tidal Influence / Site Effects:	No tidal effects
Location for Sampling Gear:	Narrow passage at grate (slight obstruction) will only permit grab sampling or possibly above grade auto-sample gear
Sampling Gear / Speciality Equipment:	Rec'd grab gear – no convenient room for above grade equipment
Outfall Sampling Location Description:	Actual outfall not visited - sampling at grate access only

FLOW MONITORING:

Channel Type / Description	Main inlet/outlet pipes are 12" corregated metal
Flow Equipment:	Due to difficult vault access, placing monitoring gear may be difficult or not possible w/ available gear – spot measurements from surface
Tidal Influence / Site Effects:	No tidal effects

SITE TECHNICAL SPECIFICATIONS:

Technical Measurements Collected ?		YES ✓ NO ___	If Yes, Report Measurements on Page 3
Site Drawing #:	007	Other Tech. Info.	partial obstruction at vault enterance

WATERSHED AND SITE LU/LC

General LU / LC Description: LU = Developed commercial, paved, high density residential
LC = paved streets, high % impervious surfaces, some patches of green spaces, parking lots across street from site

GENERAL SITE NOTES:

- Good water grab sampling location for a piping / outfall site
- Flow could be measured effectively from surface only
- Very limited vault access - partial blockage
- Access, General Logistics are favorable

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations
Technical Specifications

LOCATION ID:	SE#66	Page 3 of	3

VAULT SPECS

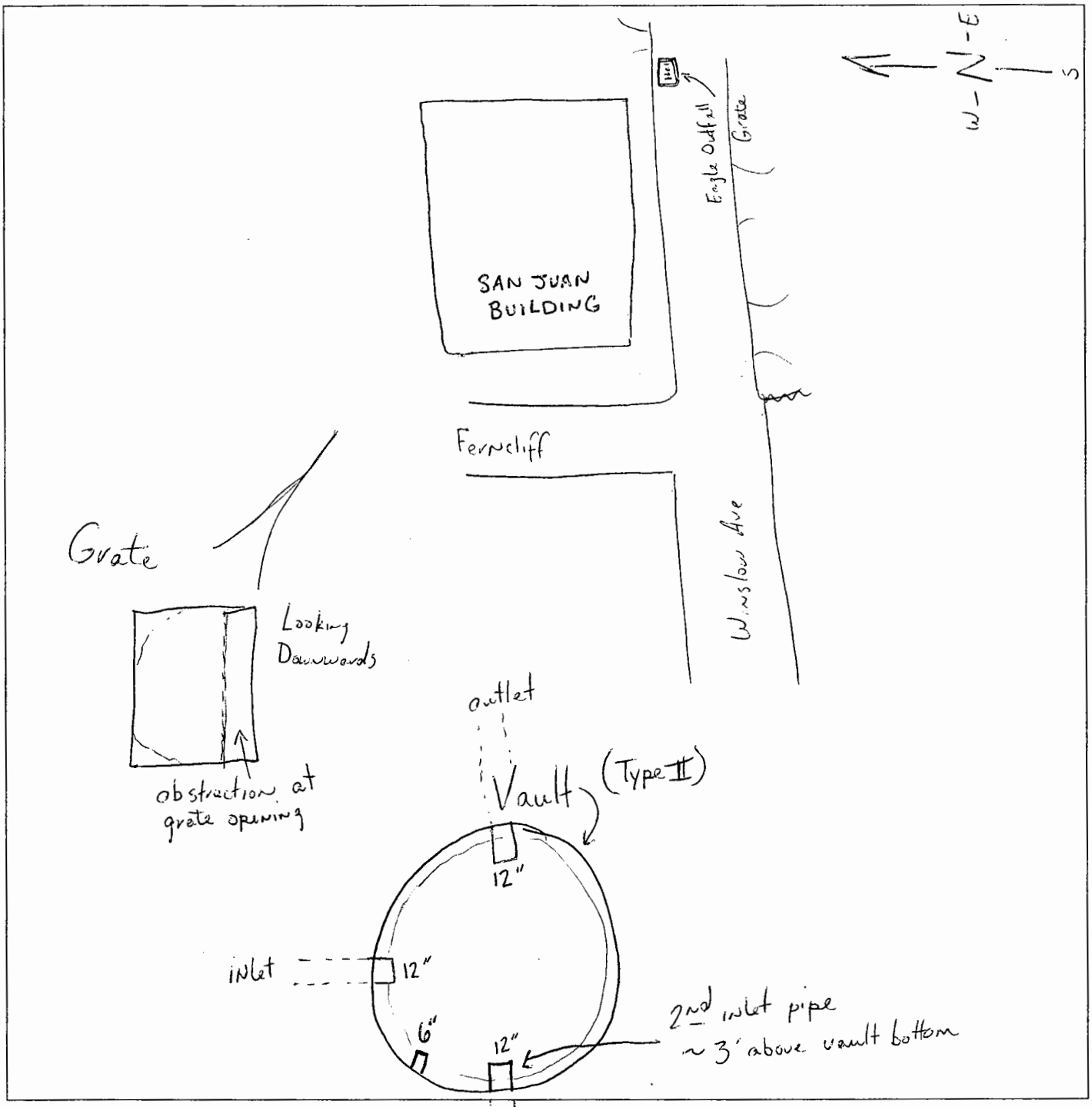
Outfall / Pipe ID	Vault Entrance Dia (IN)	Maximum Vault Depth to Grade (FT)	Vault Dia at Working Depth (IN)	Main Inlet Pipe Dia (IN)	Main Outlet Pipe Dia (IN)	Outlet Piping Type	No. of Other Inlet Pipes Intersecting Vault / Dia Range (IN)	Tidally Influenced Y/N	Flow or Standing Water Thickness (IN)	Measured/ Estimated Flow Velocity F/S	Channel Geometry at or Near Measurement Point	Sediment / Gravel Thickness in Pipe (IN)
Eagle Outfall	16x24"	8.5'	48" type II	12	12	CMP	(2) 12" CMP / 6" plastic	N	2.5' standing	low	ST	~1" gravel / sand

STREAM SPECS

Stream WRIA No.	Stream Width (IN / FT)	Ave. Stream Depth (IN)	Channel Geometry	Channel Bottom	Culvert Entrance Description	Comments / Other

CB = catch basin
CLV = culvert pipe
CMP = corregated metal pipe
CRK = creek
DD = drainage ditch
F = flow to an undetermined depth
Grated = grated entrance to measuring site
High = high flow velocity (>10 f/s)
Low = low flow velocity (<1 f/s)
MH = manhole
Mod = moderate flow velocity (1-10 f/s)
NA = not applicable
NM = not measured
Offset = indicates vault entrance is partially obstructed such that its true entrance diameter is reduced to a smaller size
OTB = outfall to beach front or back bay area
SAVH = varied pipe geometry, sharp entry angles and various inflow heights
SLAC = entrance pipes slightly angled into a convergence
SBC = smooth bore concrete
ST = straight pipe run
TC = terracotta pipe
TeD = pipe Tee divertor
TG = tide gate, flush preventor
UND = undetermined
V = vault
WS = weir structure

City of Bainbridge Island
Water Quality and Flow Monitoring Program
Site Evaluation Event



Drawing No. 007
Drawing Date: 1/17/06
Site Location: SE #106 Eagle Outfall
Drawing By: DCM

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	1 of 2
Date:	1/12/2006
Time:	0910

LOCATION INFORMATION:

Location ID:		Primary Site Code:	SW	Secondary Site Code:	Crk
CoBI Site Area:	EGDL - Rose Loop	CoBI Watershed Code:	EGDL	CoBI Site Owner Type:	CoBI ROW
Location Description:	SE#80 Rose Creek, Rose Loop bottom, where creeks culverts under road				
Location Name:	Rose Creek	Loc Coord. Ref System:	SPCS		
Lat. / Northing:	229636.38	Long. / Easting:	1223794.26		
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601	Horizontal Collection	EIM Method Code #13		
Other Location Info:	Creek location reported to be seasonal - ~~south~~ north side culvert = better access				

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.) Eagle Harbor drive east to Rose Loop (drive down - north, to bottom), road veers to the west, drive to approximately center of loop (lowest elevation point) road crosses creek

General Logistics: Difficult access to creek at either culvert inlet or outlet (upstream or downstream) side of Rose Loop. Creek runs down steep hillside and enter a small (10'x10') pool area filled w/ debris - culvert inlet sunken/hidden. Outlet side better access

Traffic Control: Tight parking, but there is room on west side of road crossing for one vehicle. Park far enough off of road side so as not to block traffic - no other control measures required

Confined Space: No

Health and Safety Concerns: Site is not lighted. Steep, slippery banks w/ numerous slip-trip hazards. Very little bank area on upstream side to work from

Cell Reception:	YES ✓ NO ___	Site Owner Info:	CoBI ROW / CTLG

SITE PHOTOS

Photo No. 1	Facing upstream of creek/culvert inlet side
Photo No. 2	Facing upstream from Rose Loop
Photo No. 3	Photo of downstream culvert outfall to stream below Rose Loop
Photo No. 4	NA

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page: 2 of 2
Loc ID: SE#~~48~~ 80

WATER QUALITY AND SAMPLE COLLECTION:

Tidal Influence / Site Effects:	No tide effects
Location for Sampling Gear:	Not well suited for LTM style sampling – location (either up or down stream) recied as grab-site
Sampling Gear / Speciality Equipment:	grab sampling gear
Outfall Sampling Location Description:	Inlet side of pipe hidden by debris/silt/gravel – noted creek flow into a pool area, but could not see pipe. Outlet 12" SBC pipe. Collect grab sample from creek either up or downstream either in creek or at pipe outfall. Channel is

FLOW MONITORING:

Channel Type / Description	Flow could be hand measured natural small creek, steep
Flow Equipment:	Recied hand measurement gear. Measure in creek upstream from road or possibly at pipe outfall
Tidal Influence / Site Effects:	No tide influence

SITE TECHNICAL SPECIFICATIONS:

Technical Measurements Collected ?		YES ___ NO ✓	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	**Other Tech. Info.**	12" SBC pipe

WATERSHED AND SITE LU/LC

General LU / LC Description:
LU: Residential, agro
LC: Forested timberland, farm fields,

GENERAL SITE NOTES:

- Not a high ranking sample collection or flow monitoring site
- Both flow and/or sample collection recied by "hand" means
- Flow in creek low to mod
- All other site characteristic marginal

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

TEC ENVIRONMENTAL MANAGEMENT

Page:	1 of 23
Date:	4/3/06
Time:	1000

LOCATION INFORMATION:

Location ID:		Primary Site Code:	PS /OFL	Secondary Site Code:	OFL /VLT
CoBI Site Area:	PLBH - Lynwood Ctr.	CoBI Watershed Code:	PLBH	CoBI Site Owner Type:	CTLG
Location Description:	Drainage system capturing runoff from the Lynwood Center area				
Location Name:	OFL50 - Lynwood Center Outfall			Loc Coord. Ref System:	SPCS
Lat. / Northing:	225058.74			Long. / Easting:	1216539.97
Horizontal Ref. Datum Code:	NAD 1983 WA North 4601			Horizontal Collection	EIM Method Code 13
Other Location Info:	Site could be accessed via vault or possibly beach front outfall				

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.) Lynwood Center Rd NE south to continuation along Pleasant Beach Drive (also Southward) - turn west at Point White Drive NE. Vault location is in front of a small beach-front neighborhood - outfall is on beach behind ~~houses~~ houses.

General Logistics: Vault access is open and available 24hr/day - outfall access (overland) is through private property (access to be coordinated w/ homeowners). Vault has 24-inch circular grate cover. Outfall pipe partially buried on beach. Not lighted at either vault or outfall

Traffic Control: Semi-busy road, no required traffic control - however personnel safety vests and vehicle strobe should be used.

Confined Space: Yes - if set up is required in vault (None at outfall)

*Storm drain grate (to vault access) located adjacent to landscape planter area, just east of courtyard gate

Health and Safety Concerns: Traffic, confined space, working near tidal waters at outfall
Slip-trip hazards along pathway to beach

Cell Reception:	YES____ NO ✓	Site Owner Info:	CoBI ROW @ Vault / private prop. @ outfall

SITE PHOTOS

Photo No. 1	from boat (Oct '05 boat tour) facing north towards beach area
Photo No. 2	(outfall pipe not visible in photo, tide level too high)
Photo No. 3	→ View looking downwards into vault (photo taken 8-2003)
Photo No. 4	

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: OFL 50

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	Yes, definitely at beach-head outfall and at least partial in pipe run from the beach to the vault - otherwise non-tidal samples could be collected from the vault or inlet piping
Location for Sampling Gear:	Above grade only possible location
Sampling Gear / Speciality Equipment:	Hand grab rec'ed ; however there is room for an enclosure (for auto-gear)
Outfall Sampling Location Description:	Outfall on beach-head (due to access/tide issues) would be best reserved as a secondary option - partially buried in sand/sediment
FLOW MONITORING:	
Channel Type / Description	Piped system - several inlet pipes (from 8" to 30") enter a type-II vault (large, 10' working diameter) and flow out of a 42" concrete pipe
Flow Equipment:	A-V meter or hand measurements possible
Tidal Influence / Site Effects:	Pipe (outlet) is tidally effected and accurate flow measurement could be effected

SITE TECHNICAL SPECIFICATIONS:			
Technical Measurements Collected ?		YES ✓ NO ___	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	Other Tech. Info.	

WATERSHED AND SITE LU/LC

General LU / LC Description:

LU = light commercial / retail, HD residential

LC = Surrounding area ~80% developed, roads, structures, some low-land marshy areas

GENERAL SITE NOTES:

- Site has decent general characteristics (access, parking, traffic)
- Not a great flow or sampling location due to tidal effects
- Work inside vault could be very difficult due to submergence of outlet piping - difficult to place loggers or Isco in-vault due to water level
- Actual outfall location is not accessible much of the time
- Site is a priority to the City

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations
Technical Specifications

LOCATION ID:	OFL 50	Page 3 of	3

VAULT SPECS

Outfall / Pipe ID	Vault Entrance Dia (IN)	Maximum Vault Depth to Grade (FT)	Vault Dia at Working Depth (IN)	Main Inlet Pipe Dia (IN)	Main Outlet Pipe Dia (IN)	Outlet Piping Type	No. of Other Inlet Pipes Intersecting Vault / Dia Range (IN)	Tidally Influenced Y/N	Flow or Standing Water Thickness (IN)	Measured/ Estimated Flow Velocity F/S	Channel Geometry at or Near Measurement Point	Sediment / Gravel Thickness in Pipe (IN)
OFL 50	24	7	120	30	42	SBC	1/8"	Y	36	Low to None	SAVH	Pipe has Sediment; so does vault

STREAM SPECS

Stream WRIA No.	Stream Width (IN / FT)	Ave. Stream Depth (IN)	Channel Geometry	Channel Bottom	Culvert Entrance Description	Comments / Other

CB = catch basin
CLV = culvert pipe
CMP = corregated metal pipe
CRK = creek
DD = drainage ditch
F = flow to an undetermined depth
Grated = grated entrance to measuring site
High = high flow velocity (>10 f/s)
Low = low flow velocity (<1 f/s)
MH = manhole
Mod = moderate flow velocity (1-10 f/s)
NA = not applicable
NM = not measured
Offset = indicates vault entrance is partially obstructed such that its true entrance diameter is reduced to a smaller size
OTB = outfall to beach front or back bay area
SAVH = varied pipe geometry, sharp entry angles and various inflow heights
SLAC = entrance pipes slightly angled into a convergence
SBC = smooth bore concrete
ST = straight pipe run
TC = terracotta pipe
TeD = pipe Tee divertor
TG = tide gate, flush preventor
UND = undetermined
V = vault
WS = weir structure

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Page:	1 of 2
Date:	4/3/06
Time:	1100

LOCATION INFORMATION:

Location ID:		**Primary Site Code:**	BMP	**Secondary Site Code:**	SWR
CoBI Site Area:	PLBH - Vincent Rd (VR) Decant & Recycle	**CoBI Watershed Code:**	PLBH	**CoBI Site Owner Type:**	CTLG
Location Description:	Outfall from the VR Decant & Recycle center				
Location Name:	BMP1			**Loc Coord. Ref System:**	SPCS
Lat. / Northing:	230855.93			**Long. / Easting:**	1216172.77
Horizontal Ref. Datum Code:	NAD 1983 WA north 4601			**Horizontal Collection**	EIM Method Code 13
Other Location Info:					

ACCESS INFORMATION:

Site Access (Driving Directions, Vehicle, Personnel, etc.) Fletcher Rd NE - ~~south~~ to Vincent Rd – to spur road leading to the facility (just to east of Kojima Ave NE)

General Logistics: Site is gated – need to coordinate access w/ City, not lighted

Traffic Control: No traffic control required

Confined Space: No

Health and Safety Concerns: General typical

Cell Reception:	YES ✓ NO ____	**Site Owner Info:**	CoBI

SITE PHOTOS

Photo No. 1	8 photos on file - show the facility, decant inlet grate, ditch
Photo No. 2	conveyance course and settling ponds (ponds 1 & 2)
Photo No. 3	
Photo No. 4	

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: BMP 1

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	No tidal influence
Location for Sampling Gear:	Ample room for gear enclosure
Sampling Gear / Speciality Equipment:	Rec'ed grab gear
Outfall Sampling Location Description:	Sample could be collected directly from surface pond or from outlet pipe

FLOW MONITORING:	
Channel Type / Description	12" CMP; ~~could place~~ leading out of Settling pond #2
Flow Equipment:	Could obtain flow w/ auto gear (A-V meter); although hand measurements are rec'ed
Tidal Influence / Site Effects:	No tidal effects at site

SITE TECHNICAL SPECIFICATIONS:

Technical Measurements Collected ?		YES ___ NO ✓	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	Other Tech. Info.	City has add. tech info if needed

WATERSHED AND SITE LU/LC

General LU / LC Description: LU: Former landfill facility - currently a recycle + decant facility
Surrounding LU = LD residential, recreational
LC = open areas, forest/timber land, roads

GENERAL SITE NOTES:

- Good general site characteristics; some access issues to coordinate
- Good sampling and flow measure characteristics
- Representative location for facility type (only one of its kind on the island)
- Site also good because of its ability to segregate an upland loading source on a large stream system which will likely be monitored further downstream as well

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

TEC ENVIRONMENTAL MANAGEMENT

Page:	1 of 2
Date:	4/3/06
Time:	1230

LOCATION INFORMATION:

Location ID:		Primary Site Code:	BMP	Secondary Site Code:	SWR/(pond)
CoBI Site Area:	MZBY - Hidden Cv. Rd	CoBI Watershed Code:	MZBY	CoBI Site Owner Type:	CTLG
Location Description:	CoBI O&M Yard facility stormwater retention pond				
Location Name:	BMP2			Loc Coord. Ref System:	SPCS
Lat. / Northing:	255736.94			Long. / Easting:	1217787.98
Horizontal Ref. Datum Code:	NAD 1983 WA north 4601			Horizontal Collection	EIM Method Code 13
Other Location Info:					

ACCESS INFORMATION:

Site Access (Driving Directions,Vehicle, Personnel, etc.) SR305 to East on Hidden Cove Rd. to access driveway to facility (South side of Hidden Cove Rd.). Pond located where access road splits (center of "Y")

General Logistics: Site is gated - access for after-hours needs to be coordinated w/ ~~facil~~ facility / City. Not lighted. Ample parking

Traffic Control: Heavy const. vehicles / trucks or other city vehicles entering / exiting facility. Vests required, no other traffic requirements

Confined Space: No

Health and Safety Concerns: General, working around steep-sided pond - could be an issue when bank is wet

Cell Reception:	YES ✓ NO ____	Site Owner Info:	CoBI

SITE PHOTOS

Photo No. 1	Five photos of pond and outlet (over-flow) pipe on file
Photo No. 2	
Photo No. 3	
Photo No. 4	

TEC ENVIRONMENTAL MANAGEMENT

CoBI Water Quality and Flow Monitoring Program
Site Evaluation Form
Land Locations

Loc ID: BMP 2

WATER QUALITY AND SAMPLE COLLECTION:	
Tidal Influence / Site Effects:	No tidal influence
Location for Sampling Gear:	Plenty of available space around pond and further over bank to north of pond
Sampling Gear / Speciality Equipment:	Could use auto-gear (direct access to main outfall piping required - which may be difficult) Hand gear rec'ed
Outfall Sampling Location Description:	Main outfall piping discharges to north of pond down a steep hillside that is covered in a thick mat of brambles - Sample from pond surface or
FLOW MONITORING:	
Channel Type / Description	Overflow pipe = 12" CMP from outlet over flow pipe
Flow Equipment:	A-V meter would only work during high flow at overflow point; A-V meter would need to be placed at main outlet piping for more accurate measurement.
Tidal Influence / Site Effects:	No tidal influence

SITE TECHNICAL SPECIFICATIONS:			
Technical Measurements Collected ?		YES ___ NO ✓	If Yes, Report Measurements on Page 3
Site Drawing #:	NA	Other Tech. Info.	Bolted cover on vault lid adjacent to pond overflow not insp. further - may access main outlet piping directly (which could lead to a CSE.)

WATERSHED AND SITE LU/LC

General LU / LC Description:

LU: Maint. facility, highway runoff

LC: paved yard area, forested areas adjacent, highway cover

GENERAL SITE NOTES:

- Good general site characteristics
- Easy sampling (if hand/grab methods employed)
- Flow monitoring could be biggest site challenge to obtain
- Access for after-hours needs to be coordinated w/ the facility manager & CoBI POC
- Site is of interest to the City & represents a some-what unique situation

APPENDIX B

SITE EVALUATION PHOTOS

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Photo 1. SE 1A #1

Photo 2. SE 1A #2

Photo 3. SE 1A #3

Photo 4. SE 1A #4

Photo 5. SE 2 #1

Photo 6. SE 2 #2

Photo 7. SE 2 #3

Photo 8. SE 5A #1

Photo 9. SE 5A #2

Photo 10. SE 7 #1

Photo 11. SE 7 #2

Photo 12. SE 10 #1

Photo 13. SE 10 #2

Photo 14. SE 10 #3

Photo 15. SE 11 #1

Photo 16. SE 11 #2